NORMAL FITNESS DATA IN CYSTIC FIBROSIS – A SCOPING REVIEW

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OBJECTIVES

The importance of aerobic fitness (VO_{2max}) in cystic fibrosis (CF) is well established, and regular exercise testing is recommended. Data for VO_{2max} can be reported as a percent of predicted values, and the 2015 European CF Society Exercise Working Group (EWG) statement on exercise testing suggesting certain normative equations (Orenstein 1993, Jones 1985). Whilst equations are frequently used, their validity is questioned and numerous approaches are used, which affects interpretation. Use of these equations has yet to be fully described and therefore this study sought to report what normative data is currently used in CF literature.

METHOD

A scoping review was performed, via systematic database searches (PubMed, Embase, Web of Science, SciELO, EBSCO) and forward citation searches, for studies that include people with CF, and report VO_{2max} as a percent of predicted. Studies were screened using Covidence, and data related to patient demographics, testing modality and reference equations extracted. Data was further analysed using studies published 2016-2021, following the ECFS EWG statement in 2015.

RESULTS

A total of *n* = 169 studies were identified, dating from 1984 – 2021, representing 6829 patients with CF; citing *n* = 34 normative data studies. The majority (150/169) of studies used cycle ergometry, and 11/169 used treadmills; the remainder being alternative, combination, or undeclared modalities. In total, 60/169 failed to declare which normative data were used, with 23/169 using equations of Orenstein (1993), and 12/169 using equations of Jones (1985). Of 60/169 published from 2016-2021, only 17/60 used equations suggested by the ECFS EWG.

CONCLUSION

There is wide discrepancy in the normative data being used to estimate VO_{2max} as a percent of predicted within the CF literature, with few studies endorsing equations from the ECFS EWG statement. This high variance leaves interpretation of, and comparison between, studies susceptible to misinterpretation.

1995/2000 CHARACTERS